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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/796,893	03/09/2004	Lap Chan	CS99-120B	2875
7590 04/20/2005			EXAMINER	
George O. Saile 28 Davis Avenue Poughkeepsie, NY 12603			RAO, SHRINIVAS H	
			ART UNIT	PAPER NUMBER
			2814	

DATE MAILED: 04/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/796,893

Applicant(s)

CHAN ET AL.

Examiner

Steven H. Rao

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 25-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 25-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4/15/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

Acknowledgement is made of papers filed under 37 CFR 1.120 claiming priority from U.S. Serial No. 09/418,029 filed on October 14, 1999. A divisional application has been established and an action on the divisional follows.

Information Disclosure Statement

The IDS filed on April 15, 2004 has been considered and an initialed copy of the 1449 placed in the file. A copy of the initialed 1449 is enclosed with the instant office Action with instructions to the contract staff to mail it along with the instant office Action.

Drawings

The drawings filed on March 09, 2004 are acceptable.

Preliminary Amendment

The preliminary amendment filed on March 09, 2004 has been entered.

Therefore claims 1-24 have been cancelled.

Claims 25 to 28 as recited in the preliminary amendment are currently pending in the Application.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 25 to 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claim 25 line 9 recites " under angle of known value", it is not clear from this recitation what Applicants' intend to include or exclude because " known value " can mean different values for different interpreters .

If applicants' intend to recite a range of angles it is suggested the recite " at (0 degrees " because that 90 degrees is the only disclosure described in the specification e.g. pages 8 and 15) as originally filed.

Therefore any recitation other than the 90 degree recitation would also constitute new matter.

Claims 26- 28 are rejected at least for depending upon rejected claim 26.

Similarly claims 27 2-8 also recite " extended in thickness by a measurable amount" , it is not clear from this recitation what Applicants' intend to include or exclude because " measurable amount " can mean different values for different interpreters .

If applicants' intend to recite a range of thickness for the oxide layer deposited over the surface of the second dielectric layer it is suggested that Applicants' recite " 1000 to 4000 angstroms as described in the specification as originally filed (sp. Pg. 16 etc.) .

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 25 to 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Kotah (U.S. Patent No. 5,141,896, herein after Kotah)

With respect to claim 25 to the extent understood, Kotah describes a multilevel interconnect structure, comprising a semiconductor surface that has been provided with points of electrical contact in the surface of said surface; (Kotah figures 1-5 (I), e.g. figure 2 (a) 20 similar to applicants' fig. 1a etc.) a first layer of dielectric deposited on said semiconductor surface said first layer of dielectric containing a first network of trenches filled with air; (Kotah fig. 2a, etc. # 3, col.3 line 22) a second layer of dielectric deposited on said semiconductor surface said second layer of dielectric containing a second network of trenches filled with air whereby said second network of trenches (Kotah figure 3 a, # 7) is in physical contact with and intersects with said first network of trenches under an angle of known value; (Kotah figures 3a to c) and a layer of oxide deposited over the surface of said second layer of dielectric. (Kotah figure 4c # 11).

With respect to claim 26 to the extent understood, Kotah describes the multilevel interconnect structure of claim 25 whereby further more a network of metal interconnect lines is created on the surface of said layer of oxide. (Kotah figures 1-5L, e.g. # 6, 13, etc.)

With respect to claim 27 Kotah to the extent understood, describes the multilevel interconnect structure of claim 25 whereby further more said layer of oxide

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deposited over the surface of said second layer of dielectric trenches is extended in thickness by a measurable amount. (Kotach figures and col.5 lines 35 to 60).

With respect to claim 28 to the extent understood , Kotch describes the multilevel interconnect structure of claim 27 whereby furthermore a network of metal interconnect lines is created on the surface of said extended layer of oxide. (Kotach figure 4d etc.)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven H. Rao whose telephone number is (571) 272-1718 . The examiner can normally be reached on 8.00 to 5.00.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Patent Examiner

April 06, 2005.